

Infectious Diseases in Pediatric Immigrants, Refugees and Travelers - Pediatric Grand Rounds-2-20-2026-Meeting Recording

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● **Calderon, Delia** started transcription



Ranch, Daniel 0:08

6.

There's my reminder. So, all right, good morning. It's 7:30, so we'll get started. Thank you for joining UT Health San Antonio Pediatrics Grand Rounds. As a reminder, as you log on, please mute your devices so we don't interrupt Dr. Sutter's upcoming wonderful talk also.



PRIMROSE MEIER 0:28

That.



Ranch, Daniel 0:46

The participation code CV code will be placed in the chat box periodically, so you can check there.

Otherwise, it is my pleasure to introduce Doctor Dina Sutter, retired Colonel, United States Air Force, who joined the faculty after retiring from the Air Force after 21 years of service. So thank you for your service. She completed her undergraduate work at the University of Arizona.

And received her medical degree from The Ohio State University in 1999. She then completed her pediatric residency in the San Antonio Uniformed Services Health Education Consortium at Wilfred Hall and BAMC. After graduation, she spent two years as a general pediatrician at Kirtland Air Force Base in Albuquerque, NM.

She then completed her ID fellowship at the Uniformed Services University of Health Sciences at Walter Reed Army Medical Center and the National Naval Medical Center Bethesda. In 2007, she returned to San Antonio and spent the rest of her military career at Wilfred Hall and Bamsey as Chief of Pediatric Infectious Disease.

Additionally, she served as the Associate Dean for Quality Improvement, developing

a novel quality and safety curriculum for all SOSHEC trainees, as well as leading numerous QI initiatives with pediatric residents. During her career, she deployed in support of humanitarian missions to Honduras, the Dominican Republic and Chile. Including in 2008, when she deployed in support of Operation Enduring Freedom to Baghram Airfield, where she cared for hundreds of Afghan children managing A pediatric ICU with severe trauma and critically ill patients. So welcome, Doctor Sutter.



Sutter, Deena E 2:14

Thanks a lot. Appreciate the invitation, Dr. Ranch, and I'm really happy to be here and I'm really happy to be part of the department. So just want to express my appreciation. So I'll get started. This is, I apologize ahead of time. This is kind of a little bit didactic and I'm not really geared towards adult learners.

This one because I'm really trying to cover a lot of topics, so bear with me. We're just really trying to hit the high points of what I think people really need to be thinking about in these patients, which is a large part of our population. We're gonna talk about infectious diseases in pediatric immigrants, refugees and travelers. Today's learning objectives are to.

Identify risk factors for clinical presentation of infectious diseases in pediatric immigrants from various regions. Develop an understanding of the timeline. I think this is important for acute, indolent and chronic infections and at risk kids. Be aware of what the pre arrival screening recommendations are for refugees and for visa. Applicants and um.

Determine appropriate practices for screening of children who have emigrated, regardless of the time of evaluation.

So as you all know very well in our department in our in our at the university, there are not numerous infectious diseases that risks that are in immigrant children.

Endemic disease in various countries is a result of.

Different things, including the, you know, environmental. So what is endemic in that climate? What vectors exist as climate change evolves? Some of these things will evolve as well. And so you know certain diseases will move into neighboring areas or if there is a.

Disaster, you know, whether it's like a hurricane or a tsunami or whatever, those environments can change, and including with the migration of people from one area to another. Other risks are associated with like economic status of the people. So obviously poverty, poor sanitation.

crowding, these factors can make an endemic process in the population become more of a threat. And so being aware of what's happening at any given time, paying attention to any outbreaks, any kind of, you know, whether it's conflict or, you know, a disaster is really important.

Vaccination status. So you know, we don't have the same vaccine schedule as many other countries. There's different, there's differences between more of the more developed countries and the more developing countries. And so vaccines, even if there's they're recommended in a country, as you know, they may not be implemented or there may be.

Limitations to providing those, so being aware of that is important screening for infectious diseases and then the vaccination history. It's important to realize that the pre-screening recommendations or or following through a pre-screening policies usually only happens in refugees and some visa applicants.

As well as international adoptees, so other people who are here for whatever reason, what other capacity may not have had any screening or had their vaccinations records evaluated.

Especially migrants without status are unlikely to have had any organized screening if they don't present for care and request any evaluation. When I use the word immigrant versus migrant, I'm really talking about sort of everybody who's here. So like many of us in the department are technically immigrants or, you know, recent or. Long time ago, but a lot of people who are established immigrants may be here and have established care, but they still may be at risk because of one or two things that have not been evaluated. For example, the risk of latent tuberculosis infection in someone who's been here for a long time. This still may be an issue.

And then long term infectious diseases, chronic invalid infections, like I said, reactivation for something like for example tuberculosis and many other things. And then family members who weren't screened or people coming to visit may put them at higher risk for certain infections.

Also, if people are traveling home and international travel, their their risks can be very high depending on where they're going, what the environment is, and if they don't have pre-travel preparation, this can be an issue.

So just really quickly talking about these, I already mentioned the refugees and the visa applicants have screening recommendations or requirements. The SI VS from Afghanistan and Iraq, some of those people had recommendations, but when you look on.

The the official sites that look at this, they don't really have the same access and so they may have come in without the same screening as the refugees. So be aware of that because it's not the same thing necessarily. It's very vague when you look it up on the website.

And so whether they have access to that advice is not really totally clear. Um.

Undocumented immigration. Those are high risks are highest with those people who have crossed by foot and had a prolonged journey with and crowding and environmental factors that put them at risk. And then asylum seekers who are already in the country, it falls under that potentially.

Adoptees may have more rigorous pre and post screening, but I have seen a lot of international adoptees with variable quality of pre-screening by through adoption agencies and notably parents can opt out of the pre departure vaccines.

As long as they promise or they say they're going to give it when they get here, which you know, is not really clear. And then returning travelers, like I said, children who have traveled home to their country of origin.

So there's barriers to care, of course, you know, for noninfectious issues. I'm sure you've had a lot of education on psychosocial, malnutrition, lots of other, you know, noninfectious medical issues. And so I'm not going to go into that.

Access to care is limited in a lot of places because of fear, as you all know. And currently I'm I'm giving this lecture as if it was 2024 when I'm talking about refugees, migrants, because we don't know what's going to happen in the future. You know, the refugee programs have largely been cut off. There may be more limitation of.

Access to care because of fear leaving home. I think that's escalated in the last year. And so they even use registering in a system, you know, giving their name and giving any information may limit people's willingness to seek care until it's an emergency. Variable health literacy and then the funding, of course, is very limited and I'm not going to go into that language barriers. You know, there's a lot of bilingual people in the department. Of course, there's people who speak other languages than Spanish, but.

Fewer people are speaking, you know, African languages or dialects and then South Asian patients also may have limitations depending on what. So that that I have noticed that already in my patients that those are the bigger language barriers and the and the interpreters seem a little more limited too sometimes.

So like I said, they may present for urgent issues, the patients who won't come in otherwise and then the provider who sees them may not have the time, knowledge

and resources to actually think about all these infectious risks, why I'm giving this lecture. And then I, you know, I'm not going to talk specifically about inpatient admission in most cases, but what I have seen.

Because my practice is mostly inpatient, is many patients who had not been screened, there was no thought about screening them for some things and then they presented and whether or not the infectious disease, you know that that could there may be an infectious disease on the differential basis and how they present.

But also think about the the non presenting risks because those are opportunities in the hospital to go ahead and screen those patients appropriately if they haven't been screened before.

So general recommendations for screening, any other health assessment is recommended within 30 to 90 days and should be done for like refugees, for example, who have a more structured program. Ideally it's within 30 days. We tailor this for the country of origin. I'm going to go into that at depth.

The Minnesota Center of Excellence tool, which is the which you're linked to. I'm getting a feedback here on what's going on. OK, the Center of Excellence tool, which actually is linked from the CDC so that they developed this program and you can actually put the country name in if you don't already know this and the age gender of the child.



Syed Rizvi 10:39

Turn our excellence tool.



Sutter, Deena E 10:57

And um any other issues and so that that will like pop up as a a tailored recommendation from the patient.

So you know, not everybody may have this, the the international certification for vaccination and prophylaxis ICBP. Most of us who have this card, we either have it for when we're really little if you haven't lost it or and I'm talking about the older patients here, the older staff or faculty members.

Because I I did have one. And then the other thing is for yellow fever vaccine that you have to have this card to be to have a yellow fever and then to actually be able to present that if you cross borders. So that some people just have it for yellow fever, but if this card is used, it's a little more straightforward. There may be other records. And so vaccinations should be reviewed. Looking at the composition, if there may be

different vaccines, a lot of vaccines vary from country to country about what's in place. A good example is bivalent of oral polio series, which used to be trivalent and once it became bivalent to decrease their risk.

Vaccine associated polio in that for type 2. The recommendation is now to actually vaccinate everybody, even if they're fully vaccinated with OPV, by giving them trial. But you wouldn't really know that unless you carefully review the records.

Pre departure vaccines if they were given. So generally they're given greater than 30 days if they're live viruses. So you want to evaluate that, make sure that the that was done and then looking at the you know are the are the records reliable, you know the date should be appropriate for the age. Sometimes there's just like every single. Vaccine the same day like that's not a thing. And then looking at manufacturer and lot number. In this case, you know you want to find out that somebody actually did document a lot number. You don't have to go look it up. So look and see if these records look legitimate and the timing was correct. Serologic evaluation versus catch up. Serologic evaluation is not recommended as a.

In general, just for larger populations, but I personally, you know, have used a lot of serologic evaluation to look at a specific infection, for example, measles, cipharia, tetanus, hepatitis A&B, these are and then you know, rubella and varicella as well. Those are, those are diseases for which the antibody titers are useful, as opposed to things like pertussis and pneumococcus, where they can be variable. So you really can't just do titers and then say, oh, they're immune to everything. You're still gonna have to give some vaccines, but if you if in particular cases, you might wanna do that looking for immunity for certain things.

This is just data on the the share of 1 year olds in different countries and then overtime that have that are vaccinated against various infectious diseases. So things like hip, pneumococcal and rotavirus which are less widely used are lower the measles and the dictation.

The period tetanus map, pertussis map, the measles rates are about the same. So you're looking about, you know at best about 80% vaccination rate, which actually eventually may may be higher than ours with the way things are going. So basically you've got like 20 plus percent of your population at risk.

And so being aware that those patients really, um, depending on what country they came from, they may have no vaccinations at all in several, you know, certainly lots of patients do or very spotty vaccination history.

This is the overseas immunization schedule. This is what is given for US bound

refugees if they are not caught up. So there's a lot of vaccines that aren't on there and they may not depending on how long they're waiting to come in. A lot of people are waiting a very long time. They may complete that schedule or they may.

Maybe partially through it and so hopefully they have records to come in that are, you know, readable. Also, I did mention that Minnesota Center of Excellence has a vaccine translator tool in this in the modern era. You know, it's not too hard to take a picture and translate something, but that could be very helpful.

The AAP has a toolkit for immigrant children from resource limited or low socioeconomic circumstances. This one is a little bit limited. You know, this is kind of the general thing that we've always done for patients coming in from these from these settings.

But the CDC site actually has this is over. I broke this table over 2 slides, a little bit more robust recommendation. So this one includes Chagas serology for risk patients. It also includes hepatitis C screening for risk patients with risk factors, which you know could be.

In some cases where there's high hepatitis C rates, we would screen babies as well. Hepatitis B is already on that other list. HIV is on the list, and this one also includes the malaria blood smear or PCR in the patients who are at risk in the first three months after they present.

The schistosomiasis IgG, which could be used as opposed to empiric therapy and then the and notably they comment that they, unlike the AAP, recommend Quantiferon or other IGRA for screening for less than two years as opposed to less than five years we've been.

Using that that test down to two years for a very long time. I'm sure many in the department have used this test for for younger children and in fact we use it for babies in certain circumstances, but for VAS screening down to two years is appropriate.

This is on the CDC site. So if you go to the site, the the first page, you know if you go look at refugee health has changed, it's updated for 2026. If you go into it, if you look at it from Googling other things or you know or or links.

They're all older. The the dates are all older. So I feel like they haven't been like purged or like modified dramatically. So I think there's still reasonable references, although the policies may not be in the same, you know, overall because we're not bringing these patients in this, this graph down here, a bar graph is really to show you that annual.

Numbers of job gains or loss at the CDC specifically. I pulled this data from from you know the federal sites. So overall this is just kind of a reminder that other entities have to step up or have stepped up in terms of.

Making recommendation that keeping them up to date because of the loss of so many employees.

So briefly about pediatric travelers own pretravel health visits. I in my career in the military, the vast majority of my clinic was travelers and you know, travel medicine. So we would see the whole family.

And people would generally come to us because it was, you know, these people were a lot of the more active duty or retirees. They usually do or a little bit more on top of it, you know, being compliant if there's a recommendation. And also we had all the vaccines you could possibly need and they were all free. And so this is a limitation for travel health because.

Insurance frequently in most cases will not cover these vaccines, and some of them can be very expensive. Partly because of that, only 11% of international travelers seek travel health visits if you're going to a vacation like, you know, vacation spa and staying at a resort in a.

You know, moderate or low socioeconomic country, that may not be a real requirement to go get vaccines, although we do recommend giving you to give back antibiotics for like travelers, diarrhea. So there are other things to do, but 36 to 46% of those who didn't seek care were going to low and low middle income countries. So that that kind of makes sense because a lot of these people were traveling to malaria risk countries. So primary care providers. I just got a call 2 days ago from a primary care provider who was worried about giving malaria prophylaxis to an infant who was not who was just six months old at the time of travel.

To go to Thailand. So she was not comfortable and not prepared to do that, which is totally OK because I get these questions all the time and people, you know, they don't, they don't know how to interpret the maps, most people who are going to vacation type resort type areas in those countries.

Don't really need malaria prophylaxis, but that just highlights the fact that we're, you know, that these this is a need. Those people who are visiting friends and relatives are the typically the highest risk for most infectious diseases, not all due to, you know, if they are staying with family, they have no air conditioning, they're staying in a place that has high levels of mosquito.

Or other insect burden and family who may have transmissible diseases like mostly

TB and food and water exposure. So you just need to think about that when your patients are traveling back home, especially to especially the malaria risk areas.

I made this kind of terrible visual here because I'm not very good with computers, as the residents can tell you. And I always mentioned that somebody could always help me. So these are kind of the more acute things in terms of list. There's a lot of other things and I put bacterial pneumonia, but all kinds of bacterial infections and other viruses can present.

Early Some of the more chronic subacute infections that we're going to talk about can present immediately. Often will have an acute phase and then become indolent or become, you know, so that during the time of infection, for example, things like syphilis, things like chagas, things like HIV.

Tuberculosis, of course, all those things you might have symptoms at the time of infection and then you may have risk for reactivation or persistence of the infection. So this is meant to show you that if you're at risk for some of these things, and I'm talking about things like measles, malaria in general, these risks are really in the first few weeks after the.

The child comes to the country, or at least first few months, and then most things you're gonna deal with, like things like bacterial pneumonia, influenza, diarrheal illness typically present right away. I can put an arrow there by dengue, but dengue is really gonna present very early. So the patient has just come from a dengue risk. Like they, you know, travel and return. Be aware that they should be presenting pretty soon. I threw rabies on there just as a reminder because you should do a thorough travel history and find out if there's any animal exposure that could put them at risk, because rabies usually presents in the first.

Couple of months, but then you know can represent very late and so it's important to know in case we need to get post exposure prophylaxis.

So what is a transmission risk from a child, from another, from a endemic country? Things like, you know, what do you need to be worried about? OK, you guys already know this one, right? So measles, obviously we're going to talk about that's, you know, very high risk. Varisol and influenza, you know, we already have tons of influenza. Varisol is much less transmissible than.

So we really focus on measles, diarrheal illness. Kids, all kids can get diarrhea, but specifically if they can get things like Giardia and shigellosis should be looked at in case children in general, it should be looked at. And then if they're going to daycare, preschool, you can have a spread and spread within the family as well.

And I'll include, you know, I'll include, you know, hepatitis A on there as well, tuberculosis. So, you know, rarely we'll talk about how children are rarely, rarely transmit. Household transmission, like I said, was highest and above hepatitis. And so like basically a lot of these cases are OK to have a dinner now.

Adoptee coming to a family who's been living in the US, unlike a child who's already been living with their family, may already be infected, infected or haven't been exposed to some of these things. That's that screening is really important in those cases, but it's important in everybody. Transmission is from a child. They said TB is a low risk hepatitis C.

HIV, almost all parasites except for Giardia and then you know, risk to the US population if there's a vaccine. So a vaccine, transmissible disease, vaccine, preventable disease, specifically measles. And we'll talk about measles, but you know if you have somebody coming to the country with measles.

We still are considered non-endemic right now. We're about to lose our, you know, our status as for for elimination of measles. I think that's going to be happening soon. That means we have ongoing transmission that hasn't been controlled, which appears to be the case, but right now any case of measles, any outbreak.

It's thought to originate from a specific international exposure, whether the patient goes to another country or someone from another country comes in with measles. So either way, you really want to make sure that the patient does not have to have measles and is immune to measles, especially given the the current vaccine status of our children here.

I'm going to really briefly talk about tuberculosis. So I'm not trying to insult anybody's intelligence, but I just want to kind of go over some terms. So like I have, you know, even, you know, sometimes pediatricians might say, you know, oh, are they infected, are they active, are they infectious? And these are all different, you know, somebody who's got a positive PPD or a positive.

Interferon gamma release assay is infected by definition. If it's not a false positive active disease, it versus a latent disease. Obviously latent disease is the patient has no symptoms, no signs of active infection. They still might have some fighting on their chest radiograph, but in general.

These patients are not sick and you can treat them as latent tuberculosis infection, whereas in active patients have some ongoing presentation. So like for the people who have been on the ward, we had a case recently where we had to really focus on this issue for outside providers for transferring of care from a patient who had active

disease.

But was demonstrated to not be infectious, even though the active disease was involving part of the lung, it was actually plural. And so really, you know, infectious, infectious tuberculosis is that you are transmitting by coughing up TB bacilli and so smear positive versus smear negative is very important there.

More challenging in children who are unable to expectorate and often and then then sometimes you revert to gastric aspirates and then pulmonary versus extrapulmonary disease mentioned that children are generally at risk for extrapulmonary and severe presentations.

I we gave. I gave a lecture a few weeks ago and the question was the child has no positive PPD. It's negative, but the kid has these symptoms and the fact is that young children have less likely are less likely to react to PPD or have a positive QuantiFERON. And they and if they have active disease, you know a little bit less than half of them are going to have a positive or a little bit more than half of them, a little bit less than half of them will have a negative test because they have not mounted an appropriate immune response. So keep in mind that the testing may not be helpful in these cases. These children often will have.

Things like, you know, cerebral TB, especially in young children and infants particularly and miliary presentations and they have more rapid progression. And then why are they less infectious? They're less likely to have multivacillary, so they don't have as many bacteria. They're less likely to have cavitary disease, which is a huge risk.

And they don't cough as much. So all these things make them less likely to spread TB because their cough is not as forceful. Reminder that TB is usually a subacute presentation. They don't just suddenly come in sick. It's kind of like fevers and weight loss and and fatigue and that kind of thing, you know, probably previous to that. And reminder also that reactivation risk.

Decreases over time. So an adult who is in their 50s or 60s is really not thought to have a high risk of reactivation, although it may be enhanced by like immunosuppression or something, whereas somebody who's in the first few years after having acquired TB has a significantly higher risk to reactivate even if they're not symptomatic now. So younger people are generally all.

Treated for LTBI. Again, this is less likely chest imaging. I think we can see these images. The child on the left has hyalorhagnopathy. The child in the middle has miliary disease. You can see those spots in the lung and these things are really more

classic for young children.

The picture on the right is demonstrating a kid who's a nine years old who does have classic cavitary disease. And so it does happen. We don't see it as much. And when kids come in, you know, with TB, they often, if you come in early, they may have viral or bacterial pneumonia or other diseases that may overlap and then confound your diagnosis.

Of tuberculosis.

And then, you know, just keep in mind that children can have classic adult presentations. This is what little girl I took care of. I think she was about 13 or 14. She had POTS disease, classic POTS disease of the of the lumbar spine. So if you ever see a kid come in with some kind of thing that you think is an osteomyelitis.

Myelitis of the spine. You really want to do a good travel history and consider the fact that this could be, you know, extrapulmonary tuberculosis. And so just the hope of the radiologist would guide you. But you need to be thinking about that when your patients, if you're taking care of the inpatients on the ward or you have a complicated outpatient.

This is just a table. I'm sorry, I don't have a reference on there. Prevalence of TB among the refugee children and from 2006 to 2012. That may be a little bit lower or higher depending on what's going on in that country. And these are.

They show you the the risk of the likelihood of a child having a positive tuberculous tuberculin skin test, which is significantly higher here than interferon gamma release assay. And most people know that that's because these children all receive BCG vaccine.

To prevent extra pulmonary or severe tuberculosis and there's cross reactivity. So that's the reason why we recommend interferon gamma assays, which are more expensive, but that's really why we do it. And you said the rates vary during this time, these were refugee children. The rates varied from like 4.7% in Iraq.

To 15% of DRC. So it's not it's not most children, but it's not insignificant either.

So again, that's what's recommended to do an interferon GABA release assay or IGRA. And again, I talked about the age cutoff and the fact that it's lower, lower sensitivity in infants than older children. Positive children should be who have no disease, have had a chest X-ray that's negative, they're not having symptoms. Those children.

Treated for latent tuberculosis infection. We rely on the chest clinic, Metro Health here. They're awesome people, but they are resource limited. And so if you have a

child that you're worried about, and I'm not talking about like a healthy kid who doesn't have risk factors, but something going on where you think a child needs to be seen by them specifically for a direct observed therapy.

Please let me know and I can connect you. And if the patient is outside of Bexar County, then we have to come up, be creative and often I'll end up seeing those kids because they can't see all the ones here, but they can't see them at the chest clinic. And also remember that window treatment, so a child less than five years who's been exposed to an adult.

Active pulmonary tuberculosis LTBI therapy because they're thought to have been exposed. This is sort of like to prevent them from progressing to take 10 weeks to rescreen the children. And that's true of all people who were known to be exposed to an active case.

That is not true of children who are immigrating from a risk country. It's really more like those kids can just have one test and then if they're going back and traveling exposure, there's there's debate over how often you test people who are going back and forth to high-risk countries. Sometimes we screen them annually and often we'll screen them pre-travel.

To know whether they acquired TB recently or whether it was in the past. So these are all important things to think about. I'm going to oh, my pictures are messed up there. I'm going to talk about measles very briefly. Remember, this is conjunctivitis. The residents are probably tired to be talking about this, but I'm tired of thinking about it.

Just keep in mind that we are seeing measles right now locally. We had this case that came in from. I don't know exactly how many kids, but it came in from Bernie and had already exposed people in the Bernie emergency department. They were recently at the Methodist Ed.

I don't know what kind of if they isolated them when they got in or what, but you know we're gonna see more cases. This is not considered about large outbreak, but it might end up being. So keep in mind you need to be aware of the presentation. This is, this is kind of these kids are looking sick.

They typically are not like, you know, the kind of like, you know, tip disease looking kid or roseola who might look sick for, you know, a couple of days. These are kids are toxic looking. They have a rash that starts on the face, progresses over the trunk, severe conjunctivitis. They can have cytopenias and a lot of other things going on. And then keep in mind that the only pathognomonic finding is these public spots,

which you know frequently is aren't seen. But the important thing to know is that you know these kids have an incubation period of about 8 to 12 days. So after 14 days if your patient is in febrile from arriving.

Then they probably haven't brought measles in or are not infected with measles.

Now they might get infected if they, you know, come to our town, but or anywhere in the US really multiple places. So keep in mind that if they are febrile, they may be febrile without a rash for the first couple of days. And so you know, just when they just know that you have.

Wind.

After which measles is not really on your differential. The picture down on the bottom is showing you skin necrosis, which can happen in severe measles, especially with malnutrition and vitamin A deficiency. So if you have refugees coming from countries that may have sequelae of measles infection and then maybe secondary bacterial infection of this breakdown.

HIV previously was required for immigration and visa applicants is no longer required. So I'm getting mothers in the FACS clinic who have recently come in in a legal status and they have HIV and so we need to be aware that this is something we need to follow.

And then children from all high incidence regions should be screened or some of the recommendations. Other recommendations are screen everybody unless you have, you know, verifiable records that the mom had HIV screening during pregnancy and she was negative. HIV antibody is almost always appropriate screening.

Unless there was a recent exposure where you would need PCR or a neonate like in our country, you know a neonate, you know neonatal HIV, we use PCR or NAAT testing because maternal antibodies present. Now if you mass screen neonates and the neonate had a positive antibody.

You, of course, sex try to deduce whether this was antibody from the mom or the baby's infected by PCR. So that's, you know, I think people will follow that pathway. HIV infected children. We also need to know about them. Not only should we treat their HIV, but now they're at risk for other severe diseases.

Including tuberculosis if they get infected with something else. As far as the number of HIV positive children that are coming into the country, there are no data really.

Very few cases have been identified and it depends on your population. Sub-Saharan Africa is a higher risk than other regions and so people are coming.

Coming and overstaying visas or something like that because not coming in as

refugees and they're probably not getting visa applications approved. Then realize that those patients really need to be screened. There was a study, it was about 151015 years ago and probably still relevant. African born women were 12 times higher than US born black women and 36 times.

Higher than newest born white women to have HIV. And so these patients who are coming in, even if the baby's not infected or the child's not infected, mother's often breastfeed for an extended period of time. And so monitoring them and sending them over to the Vax clinic for education is really important. I've run into a lot of barriers to care with these patients.

Who I've seen so far in terms of language and sometimes, you know, cultural norms in terms of breastfeeding, even if they're high risk. So just send them to us and we'll work it out. OK, I've got like, I don't know if I have time to cover everything, but I've got a lot of parasite slides because people always like to hear about parasites and we always talk about them. I'm gonna break this.

Down into, um, just kind of like I like to categorize things and remind people and if they, you know, again, not to insult anybody's intelligence, but just a reminder so that the questions I get, um, you know, even from people I think should know something. It's like, well, no, they don't know that 'cause that's actually my specialty. So if you talk to me about.

You know, some kind of, you know, anatomic thing in the heart like which happens. I'm like, OK, I don't know what that is. So just a reminder that, you know, we can dumb things down a little bit and simplify it. So overall, when we talk about parasites, we're talking about protozoa, which are single celled organisms on the left.

And then we're talking about helminths, which are worms on the right. And those are broken down into nematodes, which are roundworms, cestodes, which are flatworms, trematodes, which are flukes. The latter two are much less common. And so a lot of the times that we talk about giving empiric antiparasitic therapy, it will treat some of the relevant things in different categories, but some.

Sometimes you need more specialized treatment and the clinical presentation of these is very different. So I'm gonna briefly talk about a couple of them, the most important being malaria. Malaria's got a kind of global distribution in terms of like tropical and subtropical areas. We certainly used to have malaria in the United States. It's no longer considered.

Pandemic for quite a while. Primary concern for these patients is if they have severe malaria from piece of falciparum. So Plasmodium falciparum, it causes almost all

severe malaria, which is all typically from sub-Saharan Africa. So this map is showing you that present infected with malaria and then the number of.

Child deaths. The number of child deaths is, you know, with a little bit of color there in India, which is pretty uncommon, but there is falciparum in other parts of the world. Almost all the falciparum deaths are in sub-Saharan Africa, so the other species, Vivax and Ovale, can cause recurrent disease.

They can present with acute malaria and if they're from an endemic area you should think about that. But they rarely cause the severe life-threatening malaria. And reminder, this 92% of all malaria cases is all malaria cases that are seen are from sub-Saharan Africa. So I mean if you have plasmodia, endemic in another country.

This is where you're gonna see. And then basically thinking about malaria deaths by age. Remember that the burden is very, very heavily in the five, the young children, um, under five years of age. And so those are ones you're really gonna worry about. Um.

And I'll talk about why. So basically patients who are from a high risk country should receive pre presumptive pre departure treatment, coartem and there's some other drugs they used to use that are less effective. The exceptions are pregnant women in the first trimester, babies under 5 kilos and those who are allergic.

Hopefully these patients are getting this. So this is patients who are asymptomatic and they're just going to go ahead and give it to them because a lot of people have sort of subclinical parasitemia, not so much babies, but older patients who have partial immunity and that does exist. You want to test those above groups even if they're asymptomatic, like I said.

Treat them if they're positive and then screening. If you have patients who are coming in like who did not get screened, you could consider doing drug screening screening for those people, including young babies, which is a little difficult because blood smears are technically a little bit difficult if you don't have a lot of them being done.

After your patient's about 3 months into their journey and they've been here out of their risk country for three months, you're not really going to be worried about p-falciparum. Most of it's going to present right away. Severe malaria, you know, this, like I said, presents quickly. It's usually in children who don't have that partial immunity or travelers who have gone.

And so people who are taking their young child to go live in sub-Saharan Africa in a remote area for some kind of education, missionary work, those babies are super

high risk and the older children are as well. And so we're reminder what severe malaria looks like if you have a fever and a traveler and they're toxic looking and ill and you can't figure out what.

It is. You better think about where they came from and even if they're not from sub-Saharan Africa, consider severe malaria on your differential because they can present occasionally. Sagar disease we talk about a lot. This is *Tropanosoma cruzi*. This is a protozoa is where, well, it's not a blood protozoa like the other like malaria. It's a considered.

Tissue protozoan even does go through the bloodstream. These reduvid bugs, which is a whole big family of these insects, they're not you know tightly related typically will bite. Historically these are these are insects that would be in like you know Bolivia is kind of like the highest risk in the in the in the remote areas where there are.

Thatched roofs and the bugs like to live in there, but we know these insects are present and infected with chagas, even in South and South Central Texas. So it is endemic here, although at a much lower rate, the insect bites you and then basically it poops on you too. And then if you rub.

The poop into the open wound. That's how you get infected. And in those cases it travels through the bloodstream and then it ends up setting up shop in your body and can cause severe damage over time. There can be acute symptoms including, you know, even.

Even neurologic symptoms and congenital cases when they do present can be very severe, but most people are not symptomatic or they have very mild symptoms. And then this chronic damage will leading to cardiomyopathy, gastroparesis and even neurologic manifestations occurs overtime.

In about like 3030 percent, 40% depending on what what reference you look at. So this is usually a disease of older patients. Shoggas risk for people who this was a adult men and this was a study from a few years ago where they looked at TCRCI infection prevalence.

You can see that the highest rate was in Bolivia, 18%. I don't exactly know how they stratified this population. In most other countries it was like one or less than 1%. I don't know what's going on there with Argentina because it's not supposed to be based on the map, particularly high risk areas. So these are really.

Some risk in Mexico and some areas of Central America and then the north part of South America, which is a risk for a lot of other things too, is is a risk issue. And then this, this is talking about Chagas in the population. So you're like you're like, why is

Chagas in Australia and Canada? It's because people move and they have a chronic disease.

So this is like seroprevalence studies. So the blood supply in pregnant women are being screened. We know we screen pregnant women here and I was in, you know, this was before I came. But it seems it would be interesting to look at, you know, risk factors and false positives when I'm dealing with dealing with some of the false positive people who.

We did not have travel risk, but because it's endemic here, the recommendation has been to screening serologic testing for chronic infections with a non acute period. They you have to use two different antibody tests for adequate sensitivity that's recommended and specificity.

The state was is supposed to offer confirmatory testing which has been on and off over time. So we might have to reach out to them and then come up with an alternative if we have a question about, you know, mismatching antibody tests and lysis. PCR is used to diagnose acute state and congenital disease.

Um and treatment is benzidizol. The treatment for the younger kids and other patients who can't receive this is more difficult to acquire.

Just to let you know, I'm probably because I'm talking so long in these slides, I'm probably going to skip the last few, which is totally OK with me. So intestinal helminths, I just want to come over a couple things. So ascaris is the highest rate. Hookworm regionally is different, but it's still a very high rate, 400 something million whipworm and then strongyloides and so these are.

The main ones we talk about. There are a whole lot of other intestinal parasites that are more obscure. I like this picture because it talks about breaks the life cycles up. So in the top two settings and Ascaris and and whipworm the the patient ingests embryonated egg.

And then the egg hatches with larvae in the intestine. A scaris has the process where the larvae penetrate the gastrointestinal wall, go through the pulmonary circulation, get cocked up and can cause Loffler syndrome when they first get infected. But then once they they swallow their their larvae, they go down and live in the intestine and are happy and.

Adult worms. That doesn't usually cause a lot of disease, but the burden can be intestinal obstruction in some cases. And when you try to deworm these kids who have a very high burden, they do not like it. Like there's like wailing and yelling and abdominal pain. So those worms have been living happily in them for years and then

you kind of you disturb them.

The bottom two, when we talk about hookworm and *Strongyloides*, both are involved. They're soil transmitted parasites, but those larvae penetrate the intact skin and then follow a similar process. But in *Strongyloides*, the adult worms can shed what they do is.

They lay eggs and then they turn it into a larval form that can penetrate the skin again. And So what we get is an unusual presentation. I'll show you a picture of that minute. This is the global distribution of all these things. Again, every map for every disease kind of has these countries sort of highlighted and but then you can see the dark red may be different when.

Area to the other. It's pretty endemic everywhere. There's a high burden. This is a scarous worm, which is very large, and this is a CT scan of a trial patient I had when I was deployed. And you can see how how lovely that circular sighting of that worm is. They just kind of are just really happy living and they're not causing problems. The other thing to remember is that.

If worms are living in an intestine and they're not upset because they're and they're not traveling through tissue, they're just living the intestine. Those patients will not have Eosinophilia. Typically it's the um, it's the parasites that are traveling through tissue that will give you Eosinophilia. So keep in mind.

Stronger ladies you have to think about. These are evidence. This is evidence of hyperinfection in immunosuppressed patients. When those larvae, you know you have a cycle where the larvae are going through and reinfecting the patient, either leaving the **** and coming back in, which is called larval currents or penetrating the intestinal wall when you give.

Theroids especially or the patient has HTLV, but also in transplant patients at a lower patients can have hyper infection. This could be life threatening. Those larvae drag and gram-negative bacteria through their pathway and so you're already immunosuppressed patient can develop gram-negative sepsis meningitis. The larvae can get up to the CNS and they don't.

Really cause the disease themselves, but they bring along enterogram-negative bacteria. So screening patients because they may end up being immunosuppressed or receiving steroids is important, especially those patients who you know will probably be needing a transplant or needing some immunosuppression.

Schistosomiasis is also on the list of things to screen for. It's much more focal in endemnicity or relatively more. This is the interesting one that involves snails and

and certain bodies of water and people who are spending a lot of time in water. And schistosomiasis can involve either the GU tract or the GI tract because there are different species. And so this looks at the high prevalence countries, which is typically mostly all really sub-saharan Africa and you know Malawi, which is bright red on that picture. I think that picture was supposed to be from the Lake Malawi and I always like to tell people.

That when I was in spent a month in Tanzania as an ID fellow, we were thinking, oh, let's go to Lake Malawi and hunt this trip. We didn't end up going, but it was like I was an infectious disease fellow and we were gonna go swim in this lake, which is one of the most highly endemic lakes for this. So if you know what country your patients from and what their, you know.

You know, whether they spend hours in the water fishing or their kids were in the water playing, they're at risk for this. And this is on this, this graph, which is this chart, which is from the CDC. So they really break it down to sub-saharan Africa and other regions, but there could be overlap in some of these. The schistosomiasis does exist like in the Middle East and South Asia.

So you'd really want to know what the indemnity is, but in general they talk about not treating those patients empirically with praziquantel, which is, you know, harder to get. They also mentioned here loa loa endemic regions if you look under Strongyloides. So you know, albendazole deworming for people who are not at risk for strongy and cystosomiasis.

Is OK, but Strongyloides is being identified more and more frequently. So most patients are going to get ivermectin as well. And the problem is this map over here is the place where Lolo, which is a filariasis type of infection. It's one of the versions of filariasis. You cannot give those patients ivermectin if they're.

Those countries. So they're gonna say don't give it to them from a low, low endemic country. You need to know what those are. You've got to look it up. You have to use alternate therapy because if you give that ivermectin to those patients, their larvae, it's just kind of like the disseminated strongy and they get they disseminate in the cause of severe illness potentially.

Other parasites like filariasis, there's many species and I won't go into that. It would take like an hour. Echinococcus, which is usually in a dog, goat, human, shepherd type of cycle. I said many, many, many cases of this in Afghanistan. This is one of our patients. This is a this is a slide for one of the radiologists.

A little boy who we brought in and he had multiple large hydatid cysts. So you know,

it's very focal, but these are things that you might want to think about and you're not going to actually identify these patients unless they have a mass or something and then you're going to catch it on imaging and then you might do serology.

And then leishmaniasis, which could be cutaneous or visceral, again, much more is common and requires blood smears and serologies. So there's a lot of different diagnostic challenges here. If I don't have time to talk about anything else, I'm almost done, but I really want to talk about sister psychosis.

So I just want to clarify this because I always get this. So *tenisilium* is the pork tapeworm and *telic tinea saginata* is a beef tapeworm. The beef tapeworm does not cause cysticercosis, but both of these can cause tinnitis and tinnitis happens when you ingest.

Um viable cysts out of pork in this case and then beef in the other case. So then anyway that you ingest this and you end up developing an adult worm in your intestine that is different than cysticercosis that is and that is acquired from, like I said, meat and in this country we're aware about eating.

Raw pork, which is Gross and I don't eat raw pork obviously. But if you eat raw pork the the I always talk about you know the at least in the past the these these animals in general we talk about like you know you know.

Livestock in this country, they really are not at the same risk as some of these other, especially more remote areas. But I generally, you know, still recommend against raw pork. And then of course we talk about raw beef and toxoplasmosis in pregnant women and so, but this is really a risk if you do eat pork in other countries or you're. Those to the pigs. So once you ingest this, you can you have the adult worm. They start shedding in the intestine the the the human does. And when they shed these eggs, if another human or even themselves, but usually that's not themselves, if they ingest those eggs and from their stool.

They develop, they can develop sister psychosis, so the direct animal exposure is not required. Humans with cytitis, like I said, shed eggs, household members, domestic workers who involved with food preparation so they can give it to somebody else toileting which they can get it from somebody else. close contact.

Are considered to be risks. So these cysts can go to multiple tissues, including the gastrointestinal tract, the soft tissue, the heart and the brain. And usually the brain kids are presenting. Usually it's in adults, but kids as well can present.

With new onset seizures, this is always the board question, right? And so if you know that somebody has contact with an infected person, you might obviously want to

treat the infected person. If a person has never left the United States or another low risk country, they still can get cysticercosis by having its exposure to.

Or fecal kind of spread. Management depends on location and viability assists and antiparasitics plus or minus steroids. And sometimes when you have like intraventricular or other complex types of such a psychosis, you might have to have neurosurgical involvement in addition to medication treatment.

And these are some examples of you know again single solitary cysts or two or three and you can have diffused, you can have ventricular with hydrocephalus. So just be aware endemicity, it's certainly most of our patients who have it are coming from Latin America. It's very high risk in those areas.

But it is a risk in South Asia. It's kind of tends to skip the Middle East because of probably because of pork and fewer people who are eating pork in those areas and then is present in Sub-Saharan Africa. But most of our patients really have been from Latin America with this very, very high concentrations very briefly since we have a couple of minutes left.

I just want to make sure we talk about congenital infections. So syphilis, it's a patient, you know, with a long bone findings in this picture. But we have tons and tons of syphilis here as you guys are very familiar with and congenital cases here. The thing to remember is if you have a child coming in.

Or pregnant women. They they need to be screened, OK? And so like when there are maybe fewer syphilis cases coming in, but don't use risk factors. Just go ahead and screen all these kids because it is treatable and it's easy to make the diagnosis. You really also want to do all other STI screenings and you get this is not any news to you for sexually active females.

Or females who you suspect are sexually active or being coerced or concerned for abuse or trafficking. This is not something that I had done in the past in deployment settings, especially we had many, many, many children in our hospital that had I was going to put a picture on there and said not to who had trauma, amputations, other. Hearing issues and it would be casually the interpreters would just mention that they were going to be sold and so they wanted to fix this so they'd be a higher price. It was very, very prevalent in that environment, but it's really prevalent in many, many environments. And you guys know there has lots of human trafficking that has not been identified. So I mean, again, you're gonna report this.

But at least these young females really should be screened and and males as well.

Chagas disease. Again, we talked about that earlier. It's only about a 1 to 5%

transmission rate, but it has potential for severe infection in the neonate rubella and Zika. You can't really treat, but you should consider them OK.

Doctor Wanch, should I stop now? I have a couple more slides.



Ranch, Daniel 54:34

You could, uh, you have a few slides left. Maybe pick out a couple more you believe. Uh.



Sutter, Deena E 54:37

Yeah, yeah. OK. I'm gonna talk fast. Yeah, I got distracted on some of them and just kind of went off on a tangent. Arboviral infections. These are like, there are many, there's a long lectures to talk about this. They're very, very fascinating, but we don't screen for them. And these, these are the things that present early, like in the first two to three weeks.



Ranch, Daniel 54:41

Or.



Sutter, Deena E 54:55

So you're not gonna have to worry about them long term unless it's like a congenital infection with Zika, dengue and yellow fever. Yeah, the yellow this. I love this map because it talks about some of the other ones that you know that are less frequently mentioned and they're all relevant. These are arboviral infections, but it does include chicken, chicken.

Chikungunya, dengue, Japanese encephalitis and yellow fever and Zika. Those are all ones that I tend to teach about that are they're risky and so you look at the map and you know what happens. Yellow fever does not exist in Asia, but does there is a significant risk in certain parts of.

Central, South America, you know, Brazil, basically the Amazon rainforest and then West Africa. So be aware of these and if your patient comes in February, consider the fact that this could be the case. And this is a picture of a tourniquet test with patiki eye indicated with dengue.

Which when you put the trinket on, they have a particular rash. Enteric bacteria. I'm not going to talk about these a lot. Typhoid and cholera are most important.

Shigellosis again, we need to identify and treat and then other commensal bacteria.

So here's a picture of one of one of our little girls who ended up coming to the United States for multiple surgeries.

After she had a needed a tracheostomy from a button battery injuries, she was kind of a little famous. These kids she had immediately came in with ESBL pneumonia.

These kids from other countries have the commensal bacteria of wherever they're from. And so if you have very high resistance rates, which we did have in South Asia.

Um, you just need to know in case the child develops a severe bacterial infection and might empirically treat for those things. Um, I think I have. Let me go through here.

I'm sorry.

I'm gonna go ahead and stop because we're at the end of our time. I'm just gonna go to my summary. I apologize. I just got off track as usual. So summaries really know what screening your patient has had, what's missing, identifying infectious risk for your patient specific to the country of origin and interval travel. If they've come on foot, gone through other countries, you really need to know what they could have been.

Exposed to thorough histories are really critical in this case. Always tuberculosis exposure is considered kind of slightly urgent. And remember TB is much less transmissible than measles, but it is still something that we want to for public health.

We really want to know that this patient is being treated and the children are not.

Exposed to an adult with active TB. Again, potential for measles and then any child from an endemic area. You should always consider malaria on your differential diagnosis and screen for it. And I need to talk to the lab about their screening policies.

And because I don't think we have rapid diagnostic testing here and make sure we have meds in stock because even if it's rare, it's it's a life threatening illness and of course counsel on vaccinations and ensure catch up. OK, that was oh, these are my shoot, that's my questions.

OK, so any questions? I know I I talked with Doctor Mazluk and she and I, she was very gracious and showed me the references that she developed or links to other references for migrant health and.

We did have a long discussion about potential quality improvement options that could be an opportunity for residents and or medical students to work on. And so if anybody's interested, you know looking at ways to improve that process, developing A screening tool that you know or a links to screening tools that are functioning and. Keeping that updated so that we can make sure anybody who is seeing one of our

patients who's maybe a refugee from, you know, Afghanistan or SIG from Afghanistan or might be a kid who you know is brought across the border, you know that we can actually tailor our.

Are screening it, whether they're an inpatient or an outpatient, because when you encounter these patients, you really need to be thinking about this. So if people are interested in this, you should reach out to her, to me and we we'd love to start something that to engage and maybe get some students on too and like really improve this process.

Um, travel medicine clinic. Uh, we don't have that right now for pediatric patients, but um, we are now that I have uh, there are two of us. We'd like to start engaging with adult ID and see if we can start seeing families together in the in the clinic because that's um.

Really a benefit to the families so they all could come in together and so maybe we'll be able to refer patients to this clinic if we have it up and running, that's in the future. If we get, we we even can do that. No questions. Sorry, just go on.



Ranch, Daniel 59:27

Well, Doctor Sutter, thank you very much for that wonderful presentation and thank you for bringing up the Global Health Initiative. We have many faculty are involved in that and so getting more residents and students involved would be great I'm sure for for those faculty. So we do have about 30 seconds or so for questions before faculty meeting.

Starts, so feel free to unmute yourself or lace in the chat.

Are everyone's grabbing coffee before faculty meeting? I'll comment that. Oh, go ahead.

Oh, go ahead.



Sutter, Deena E 1:00:00

Doctor Ranch that coming in new, I didn't want to step on any toes or make assumptions. So I me coming in here is like, you know, the person who is completely unaware of how the Global Health Initiative has been working in the department, which is why it was nice to have that conversation. So hopefully nobody feels like I was stepping on their toes or.

Reiterating something they've already done because this is just kind of my perspective coming in, especially from my military background.



Ranch, Daniel 1:00:27

All right. One quick question from Doctor Meyer in the chat. What is your thoughts on recent studies documenting high antibodies to RSV in in pediatricians and and I guess I guess that's had a protective effect in mouse models.



Sutter, Deena E 1:00:41

Yeah, I I don't have, I haven't read all of that. RSV basically, you know, antibody or you know, vaccines in the past. We have, you know, we have vaccines now that it can be effective for pregnant women. Vaccines in the past are developing antibody levels.

You know, it's those vaccines that that that had been tried in the past did trigger an immune response in children, but it caused actually severe reactions or severe disease. And so that's why we're providing antibodies directly to children.

But I don't actually haven't. I saw some headlines on this, but I did not read the article, so I can't really comment specifically on this. But pediatricians undoubtedly have very high RAC antibody levels and I'm not surprised. So I I get to read the article.



Ranch, Daniel 1:01:29

All right. Well, thank you very much. I'm sure Doctor Seidner is eager to get faculty meeting going. So thank you once again for attending UT Health San Antonio Pediatric Grand Rounds. Thank you Doctor Sutter for your presentation. Please don't forget to complete the post Grand Rounds survey that does help Doctor Sutter for with the feedback and also helps our program.

Otherwise, have a great rest of your day.



Sutter, Deena E 1:01:52

Thank you.

● **Calderon, Delia** stopped transcription